

What is claimed is:

1. A process for inhibiting expression of a target gene in cells or tissue, comprising infecting said cells or tissue with viral particles consisting essentially of single stranded ribonucleic acid (ss RNA) which expresses a sense RNA strand, and viral particles consisting essentially of ss RNA which expresses an anti-sense RNA strand, wherein the sense and anti-sense RNA strands comprise homologous nucleotide sequences to a portion of said target gene.
2. The process of claim 1 wherein said cells or tissue are/is infected with equal amounts of viral particles consisting essentially of ss RNA expressing sense RNA strand and of viral particles consisting essentially of ss RNA expressing anti-sense RNA strand.
3. The process of claim 1 wherein ss RNA is cloned into the vector of the alphavirus in sense orientation to provide viral particles consisting essentially of ss RNA which expresses a sense RNA strand, and ss RNA is cloned into the vector of the alphavirus in anti-sense orientation to provide viral particles consisting essentially of ss RNA which expresses an anti-sense RNA strand.
4. The process of claim 1 in which said target gene is an eukaryotic gene, a viral gene or a synthetic gene.
5. The process of claim 1 in which said target gene is a developmental gene, an oncogene, a tumor suppressor gene or an enzyme.
6. The process of claim 1 in which said homologous nucleotide sequence is specific for said target gene and is at least 50 bases in length.
7. A kit comprising reagents to inhibit the expression of a target gene in cells or tissue, wherein said reagents comprise viral particles consisting essentially of single stranded RNA (ss RNA) which expresses a sense RNA strand and viral particles consisting essentially of ss RNA which expresses an anti-sense RNA strand, wherein said sense RNA strand and said anti-sense RNA strand are complementary and form inside said cells or tissue a ds RNA

comprising a homologous nucleotide sequence to a portion of said target gene such that said reagents are capable of interfering with expression of said target gene.

8. A composition comprising viral particles consisting essentially of single stranded ribonucleic acid (ss RNA) which expresses sense RNA strand, and viral particles consisting essentially of single stranded ribonucleic acid (ss RNA) which expresses anti-sense RNA strand, wherein the sense and anti-sense RNA strands comprise homologous nucleotide sequences to a portion of a target gene.